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Risk Behaviour: Substance Use among Portuguese Adolescents

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Abstract

The purpose of this study was to understand the evolution of substance use, namely tobacco, alcohol and drugs, among Portuguese adolescents and the relation with demographic variables. The sample included 16058 students in the 6th, 8th and 10th grades of the public school system from the Portuguese HBSC study. The results show a decrease substance use from the study of 2002 to 2006, and stabilization from de study of 2006 to 2010. According to the variants gender and age, it shows a higher use on boys of the 10th grade, therefore, agreeing with the theoretical results of the literature.

***Keywords*:** Risk Behaviour, Substance use, Adolescence, Gender, Age

1. Main text

To facilitate the understanding of substance use during adolescence, it is critical to assess the differences in personal characteristics, their social, cultural and environmental background as well as the interaction between these factors. Social influence or peer pressure assume greater importance at this stage. The school context (peer group) and social environment in which the adolescent is integrated has been identified as the most consistent predictor of substance use in adolescence (Kuntsche & Jordan, 2006), highlighting the need to explore the behaviors associated with these specific contexts, and motivations and perceptions of belonging to a culture or group, allowing a better understanding of substance use for the prevention of behaviors that are harmful to one's health (Bachman, et al, 2008).

Brook, Brook, Richter and Whiteman (2003) described a model that identifies personal characteristics, parental and peer relationships as critical factors to predict substance use in adolescence, suggesting the following risk factors: 1) psychological functioning, which includes features such as low self esteem, isolation, and emotional problems, 2) family environment, emphasizing parental attitudes towards consumption and low family cohesion, 3) relationship with the peer group, emphasizing the creation of good relationships, and 4) traumatic life events, since a

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large number of negative life events leads teenagers to greater emotional vulnerability and there is a decreased level of satisfaction with life and perception of well-being, increasing the likelihood of social risk.

Rates of smoking in adolescence have been growing over the last decade in some countries (WHO, 2009). It is becoming increasingly important to help young people avoid smoking early, and this is a broad scope in terms of public health, but specialists still do not know how to achieve it. Schools offer a route to communicate with a large proportion of youngsters and school-based programs for smoking prevention have been widely developed and evaluated (Thomas & Perera, 2006).

Alcohol consumption is one of the major risk factors for morbidity and mortality worldwide, also it is involved in more than 60 different causes of ill-health and thus constitutes an enormous burden for individual and public health as well as costs for society (WHO, 2002; 2010). Adolescent risky drinking (including frequent drinking and drunkenness) is rather common, yet carries a significant risk of adverse psychological, social, and physical health consequences, including violence, accidents, injury, as well as academic failure (Windle, 2003) and there is substantial variability in the age of initiation and amount of drinking in adolescent populations.

Several studies indicate that illicit drug use has steadily increased among adolescents since the 90's. This upward trend underscores the need for identifying effective prevention approaches capable of reducing the use of both licit and illicit drugs. Some studies results also support the hypothesis that illicit drug use can be prevented by targeting the use of gateway drugs such as tobacco and alcohol (Botvin et al, 2000; Faggiano, 2005; Johnston, O'Malley, Bachman & Schulenberg, 2008).

The risk of substance use by adolescents is not uniformly distributed by the young population, with particular focus and causing more complex problems from more disadvantaged socio-economic status students who leave school prematurely, with young mental health problems and learning difficulties. Thus, it appears to be linked to the availability of drugs, perceived safety and tolerance of substances while the abuse takes place in a context of bio-psychological vulnerability (Schenker & Minayo, 2005).

The aim of this study is: (1) to establish an evolutionary pattern of consumption of substances in adolescence, including tobacco, alcohol and illicit drugs, over eight years, from 2002 to 2010; and (2) Verifying the differences by gender and age group over the three HBSC studies.

2. Methods

2.1. Sample

The data for this study were derived from the WHO collaborative cross-national survey, Health Behaviour in School-aged Children (HBSC), carried out in 2002, 2006 and 2010 in Portugal. The study provides national representative data of 16058 Portuguese adolescents, randomly chosen from those attending 6th, 8th and 10th grades of high school. The sample included 5050 adolescents from HBSC of 2010, 4877 from HBSC of 2006 and 6131 from HBSC of 2002, 51.2% girls and 48.8% boys, 34.1% attended the 6th grade, 34.3% attended 8th grade and 31.6% attended 10th grade. The mean age was 14.01 years old (standard deviation 1.86). The students were proportionally distributed among all the educational Portuguese regions.

2.2. Procedure

The HBSC is a school-based survey of adolescent health behaviours and their psychosocial determinants, carried out every 4 years simultaneously in all participating countries, using an international standardized methodological protocol (Currie, Roberts, Morgan, & Smith, 2004; Currie, Samdal, Boyce, & Smith, 2001). The study base includes school children aged 11, 13 and 15 (6th, 8th and 10th grade students) in 44 countries in Europe and North America. According to the study protocol, data from each country are gathered from nationally representative samples. The HBSC uses a standard, self-administered in-class questionnaire that includes both mandatory and optional items. A detailed description of the methods and instrument of the HBSC can be found in Currie et al (Currie, 2006; Currie, Molcho, Boyce, Holstein, & Torsheim, 2008; Currie et al., 2004). This study had the approval of a scientific committee, the National Ethics Committee and the National Commission for Data Protection and followed strictly all the guidelines for human rights protection.

3. Mesures

The international standard questionnaire for each survey consists of three levels of questions which are used to create national survey instruments: core questions that each country is required to include to create the international dataset; optional packages of questions on specific topic areas from which countries can choose; and country-specific questions related to issues of national importance.

Survey questions cover a range of health indicators and health-related behaviours as well as the life circumstances of young people. Questions are subject to validation studies and piloting at national and international levels. The core questions provide information on: demographic factors (e. g., age and state of maturation); social background (e. g., family structure and socio-economic status); social context (e. g., family, peer culture, school environment); health outcomes (e. g., self-rated health, injuries, overweight and obesity); health behaviours (e. g., eating and dieting, physical activity and weight reduction behaviour); and risk behaviours (e. g., smoking, alcohol use, cannabis use, sexual behaviour, bullying). Analysis of trends is possible as a number of these core items have remained the same since the study's inception. For the purpose of this study, beside gender and age as demographic factors, to measure risk behaviour, namely substance use, the following questions were used:

(1) Tobacco use was assessed with the question: How often do you smoke tobacco at present? Response options included: 1. 'I do not smoke', 2. 'Less than once a week', 3. 'At least once a week, but not every day', 4. 'Every day', recoded into two categories 1. 'I do not smoke' (which remain as the original category 1); 2. 'I smoke' (which aggregates original categories 2, 3 and 4).

(2) Drunkenness was assessed with the question: Have you ever had so much alcohol that you were really drunk? Response options included: 1. 'No, never', 2. 'Yes, once', 3. 'Yes, 2-3 times', 4. 'Yes, 4-10 times', 5. 'Yes, more than 10 times', recoded into two categories 1. 'No, never' (as the original category 1); 2. 'Yes, once or more' (which aggregates original categories 2, 3, 4 and 5).

(3) Illicit drugs consumption was assessed with the question: How often did you use illicit drugs in the last month? Response options included: 1. 'None', 2. 'Once', 3. 'More than once', 4. 'Often', recoded into two categories 1. 'None' (as the original category 1); 2. 'Yes, once or more' (which aggregates original categories 2, 3 and 4).

4. Data analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 19. Descriptive statistics including frequencies, means and standard deviations were performed to give general descriptions of the data. Susbtance use recoded variables and demographic factors were compared between the HBSC survey years using the Chi-square ($\chi 2$) tests. The level for statistical significance was set at $p < .05$. Only significant results were discussed.

5. Results

The majority of students in the sample don't smoke (85.5%), never got drunken (74.8%) and never used illicit drugs in the last month (94.2%). However, analysing the differences between gender and age group we can verify that are boys who reported drunkenness more frequently and higher illicit drugs use, when compared with girls, and all substance use increased with age. Except for tobacco use (in the gender differences) we can say that it was the boys and the older adolescents who reported higher substance use (see table 1).

Table 1 – Differences between gender/age group and substance use

	Gender					Age Group						
	Girls		Boys		χ^2	6th		8th		10th		χ^2
	N	%	N	%		N	%	N	%	N	%	
Tobacco use (N=15829)					2.17							637.13***
I do not smoke	6554	85.0	6974	85.9		5072	**94.3**	4591	84.6	3865	**76.9**	
I smoke	1153	15.0	1148	14.1		307	**5.7**	833	15.4	1161	**23.1**	
Drunkenness (N=15869)					90.54***							1185.806***
No, never	5505	**71.4**	6367	**78.0**		4781	**88.8**	4096	75.2	2995	**59.5**	

Yes, once or more	2201	**28.6**	1796	**22.0**		605	**11.2**	1351	24.8	2041	**40.5**	
Illicit drugs use (N=14398)					120.32***							260.23***
Never	6384	**92.0**	7181	**96.3**		4712	**97.8**	4680	94.7	4173	**90.1**	
Once or more	555	**8.0**	278	**3.7**		108	**2.2**	264	5.3	461	**9.9**	

* p< .05; ** p< .01; *** p< .001
In bold – values that correspond to an adjusted residual ≥ | 1.9 |

Regarding tobacco, the results showed a significant decrease from the HBSC study of 2002 to 2010. For Drunkenness, no significant differences were found, over the past eight years the consumption has remained stable. Concerning illicit drugs use, the results show a significant decrease from the 2002 HBSC study to 2006, but the tendency pattern from the 2006 HBSC study to 2010 is an increase (see table 2).

Table 2 - Differences between year of HBSC survey and substance use

	Portuguese HBSC Survey						
	2002		2006		2010		χ^2
	N	%	N	%	N	%	
Tobacco use (N=15829)							128.84***
I do not smoke	4943	**81.4**	4212	**87.8**	4373	**88.1**	
I smoke	1127	**18.6**	583	**12.2**	591	**11.9**	
Drunkenness (N=15869)							4.69
No, never	4562	75.5	3552	73.7	3758	75.1	
Yes, once or more	1483	24.5	1267	26.3	1247	24.9	
Illicit drugs use (N=14398)							21.84***
Never	5227	**93.4**	4273	**95.5**	4065	93.9	
Once or more	370	**6.6**	200	**4.5**	263	6.1	

* p< .05; ** p< .01; *** p< .001
In bold – values that correspond to an adjusted residual ≥ | 1.9 |

For the differences between the waves of the HBSC study and substance use according to gender, significant differences were verified for all substance use. Tobacco use decreased from the 2002 HBSC study to 2006, and stabilized from the 2006 HBSC study to 2010, for both girls and boys. Also, for illicit drug use, we verify that has been a decrease from the 2002 HBSC study to 2006, although, from the 2006 HBSC study to 2010 this consumption has increased, for both boys and girls, with higher expression in girls use. Finally, regarding drunkenness, it only shows significant differences for girls, which increased from the 2002 HBSC study to 2006, and stabilized from the 2006 HBSC study to 2010 (see table 3).

Table 3 - Differences between year of HBSC survey and substance use, by gender

	Portuguese HBSC Survey						
	2002		2006		2010		χ^2
	N	%	N	%	N	%	
Tobacco use							
Boys (N=7707)							58.55***
I do not smoke	2413	**81.1**	2067	**87.1**	2074	**87.9**	
I smoke	561	**18.9**	306	**12.9**	286	**12.1**	
Girls (N=8122)							70.98***
I do not smoke	2530	**81.7**	2145	**88.6**	2299	**88.3**	
I smoke	566	**18.3**	277	**11.4**	305	**11.7**	
Drunkenness							
Boys (N=7706)							4.57
No, never	2090	70.9	1681	70.5	1734	**73.1**	
Yes, once or more	859	29.1	703	29.5	639	**26.9**	
Girls (N=8163)							9.91**
No, never	2472	**79.8**	1871	76.8	2024	76.9	

Yes, once or more	624	**20.2**	564	23.2	608	23.1	
Illicit drugs use							
Boys (N=6939)							11.14**
Never	2458	**90.8**	2050	**93.4**	1876	92.0	
Once or more	248	**9.2**	144	**6.6**	163	8.0	
Girls (N=7459)							14.83***
Never	2769	95.8	2223	**97.5**	2189	**95.6**	
Once or more	122	4.2	56	**2.5**	100	**4.4**	

* p< .05; ** p< .01; *** p< .001
In bold – values that correspond to an adjusted residual ≥ | 1.9 |

For the differences between the waves of the HBSC study and substance use according to age group, significant differences were also verified for all substance use. Tobacco use decreased from the 2002 HBSC study to 2010, for 6th and 8th grades, but as for 10th grade it was verified the same decreasing pattern from the 2002 HBSC study to 2006, increasing from the 2006 HBSC study to 2010. Regarding drunkenness, it only shows significant differences for 6th and 8th grades, which decreased from the 2006 HBSC study to 2010, for 6th grade and also decreased but from the 2002 HBSC study to 2010, for 8th grade. Concerning illicit drug use, only for 8th and 10th grades significant differences were found, and it was verified a decrease from the 2002 HBSC study to 2006, and it stabilized from the 2006 HBSC study to 2010, as for the 8th grade, and also 10th grade show a decrease from the 2002 HBSC study to 2006, but the tendency pattern from the 2006 HBSC study to 2010 is an increase (see table 4).

Table 4 - Differences between year of HBSC survey and substance use, by age group

	Portuguese HBSC Survey						
	2002		2006		2010		χ^2
	N	%	N	%	N	%	
Tobacco use							
6th grade (N=5379)							23.17***
I do not smoke	2175	**92.8**	1432	94.3	1465	**96.5**	
I smoke	168	**7.2**	86	5.7	53	**3.5**	
8th grade (N=5424)							109.76***
I do not smoke	1693	**78.5**	1492	**87.5**	1406	**90.1**	
I smoke	465	**21.5**	213	**12.5**	155	**9.9**	
10th grade (N=5026)							92.74***
I do not smoke	1075	**68.5**	1288	**81.9**	1502	**79.7**	
I smoke	494	**31.5**	284	**18.1**	383	**20.3**	
Drunkenness							
6th grade (N=5386)							12.75**
No, never	2057	88.2	1328	**87.3**	1396	**91.1**	
Yes, once or more	275	11.8	194	**12.7**	136	**8.9**	
8th grade (N=5447)							11.31**
No, never	1575	**73.4**	1284	74.7	1237	**78.1**	
Yes, once or more	571	**26.6**	434	25.3	346	**21.9**	
10th grade (N=5036)							0.01
No, never	930	59.3	940	59.5	1125	59.5	
Yes, once or more	637	40.7	639	40.5	765	40.5	
Illicit drugs use							
6th grade (N=4820)							5.11
Never	2105	**97.4**	1385	**98.5**	1222	97.5	
Once or more	56	**2.6**	21	**1.5**	31	2.5	
8th grade (N=4944)							14.15***
Never	1817	**93.2**	1525	**95.8**	1338	95.4	
Once or more	133	**6.8**	67	**4.2**	64	4.6	
10th grade (N=4634)							17.41***
Never	1305	**87.8**	1363	**92.4**	1505	90.0	
Once or more	181	**12.2**	112	**7.6**	168	10.0	

* p< .05; ** p< .01; *** p< .001

In bold – values that correspond to an adjusted residual ≥ | 1.9 |

6. Conclusions

In the present study we sought to establish a pattern of evolution of the level of consumption of substances, including tobacco consumption, frequency of drunkenness and consumption of illicit drugs in the last 30 days.

As the results indicated by several studies, the consumption of the substances indicate an increase in consumption during the 90's, with subsequent decline in consumption of tobacco, alcohol and illicit substances (Botvin et al, 2000; Faggiano, 2005; Johnston, O'Malley, Bachman & Schulenberg, 2008). In this study the results only showed a significant decrease from the HBSC study of 2002 to 2010, in tobacco consumption, since, with regard to drunkenness no significant differences were found, over the past eight years the consumption has remained stable and for illicit drugs use, contrary to the decreasing tendency, the results just show a significant decrease from the 2002 HBSC study to 2006, but the tendency pattern from the 2006 HBSC study to 2010 is an increase.

Despite the importance of understanding the whole system of contexts where the individual moves at a European level it can be observed a greater number of points in common than differences with regard to substance use. In a backdrop of a world that points to increased use of substances such as alcohol use in adolescents, we recommend the rethinking of strategies to combat the current figures relating to these consumption-oriented as problematic (Hibell, 2009).

These data allow for comparisons in successive questionnaires, and study of trends in behavior that can be evaluated nationally and internationally. As the HBSC is a study of research and monitoring, it also aims to inform and impact on policies for promotion and health education, and programs and interventions for adolescents, nationally and internationally. The HBSC survey results in the construction of a coherent set of indicators that, taken together, provides a valid representation of health and lifestyles of adolescents and its temporal evolution, while still allowing international comparisons, allowing for a careful assessment of policies health systems and intervention to promote health and prevention of risk behaviors, specifically the use and abuse of substances during adolescence (Hublet, et al, 2009).

The association of substance use to others risks and their increase with age are still present in 2010 HBSC survey, and substance use, as estimated in 2006 HBSC surveys, is no longer decreasing. It is suggested that preventive interventions continue to take place covering all the school population and several life contexts but also, the present results point out the need for selective and more intensive interventions, on small identified risk groups, taking into account their specific characteristics, such as gender and age.

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